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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,224	04/06/2004	Pavan Kumar	12521-3	7120
757	7590	10/25/2005	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			HAM, SEUNGSOOK	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 10/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/820,224	KUMAR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Seungsook Ham	2817	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

“said second portion defining a smaller surface area than said first portion” as recited in claim 1, 28, and 29.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Wulff (US '307).

Wulff (figs. 1-3) also discloses a comb-line filter comprising: a) a housing comprising: a first portion 11 made of a dielectric material and at least a portion of the first portion coated with a layer of conductive material (col. 2, lines 44-50); a second portion 13 made of a conductive material (col. 2, lines 44-50); a third portion 12, the first and second portions are being attached together to define an interior chamber 14a, 14b for conducting signals; the first portion 11 is positioned between the second portion 13 and the third portion 12; b) at least one resonator 18 attached to the second portion 12, and adapted for extending within the interior chamber 14a, 14b. It should be noted that

Art Unit: 2817

a non-conductive material coated with a conductive material as taught by Schmid et al. (col. 2, lines 44-50) anticipates the phrase, "second portion made of a conductive material" as recited in claim 1.

Claims 1, 2-4, 8, 9, 11-15, 18, 19, 21, 22 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmid et al. (US '416).

Schmid et al. (fig. 5) discloses a comb-line filter comprising: a) housing comprising: a first portion 52, 100 (see col. 6, lines 44-59) made of a dielectric material and coated with a layer of conductive material (col. 6, lines 60-63), a second portion 80b made of conductive material ("gold-plated aluminum" or "metal-coated plastic", see col. 6, lines 60-63) and having a smaller surface area than the first portion 52, 100, the first portion and the second portion adapted for being attached together so as to define an interior chamber 58 for conducting signals; and b) at least one resonator 82 attached to the second portion 80b, and adapted for extending within the interior chamber 58.

Regarding claims 3 and 4, it is inherent that the resonator 82 is made of conductive/metal material to operate as a comb-line resonator (i.e., one end being grounded through the conductive cavity 58).

Regarding claims 14, 15, 21 and 22, Schmid et al. also shows tuning screws 108, coupling screws 110 connected to the first portion of the housing 100.

Regarding claims 18 and 31, Schmid et al. (fig. 5) discloses a comb-line filter comprising: a) a housing comprising: a first portion 52 made of a dielectric material and at least a portion of the first portion coated with a layer of conductive material (col. 6, lines 60-63); a second portion 80b (i.e., first part, see claim 18) made of a conductive

Art Unit: 2817

material (col. 6, lines 60-63); a third portion 100 (i.e., second part, see claim 18), the first and second portions are being attached together to define an interior chamber 58 for conducting signals; the first portion 52 is positioned between the second portion 80b and the third portion 100; b) at least one resonator 82 attached to the second portion 80b, and adapted for extending within the interior chamber 58.

The subject matter of claim 19 is inherent from the device of Schmid et al. since dielectric material and conductive material have a predetermined thermal expansion coefficient.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. (US '416).

Regarding claims 5 and 6, providing a resonator made of ceramic/thermoplastic material is considered as an obvious design modification since such resonator is well known in the art.

Regarding claim 7, using aluminum material as the conductive resonator in the device of Schmid et al. since it is well known in the art to use aluminum to form a conductive resonator.

The subject matter of claim 20 is considered as an obvious design modification since such design technique is well known in the art to compensate temperature differences.

Claims 1-23 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasuga et al. (US '448) in view of Scott et al. (US '687).

Kasuga et al. (figs. 10) discloses a comb-line filter comprising: a housing including first and second portions 11, 12 being attached together to define an interior chamber for conducting signals; at least one resonator 22 attached to the second portion 12 and extending within the interior chamber; the at least one resonator is made of conductive material; a plurality of tuning screws 31-34 extends through a center of respective one of the at least one resonator; and a plurality of coupling screws 36, 38, 83, 84 for adjusting a response characteristic of the filter.

Kasuga et al. does not show the first portion 11 made of a dielectric material and covered with a conductive layer.

Scott et al. (figs. 2-3D) discloses a similar comb-line filter with a housing having a first portion 201 made of dielectric material 201A and covered with a conductive material 201B and the cover 202 is made of a conductive material for low-cost and lightweight filter (col. 2, lines 26-33).

It would have been obvious to one of ordinary skill in the art to provide the first portion made of dielectric material and covered with conductive material instead of metal housing in the device of Kasuga et al. to obtain low-cost and lightweight filter device as taught by Scott et al. (col. 2, lines 12-15).

Regarding claims 5 and 6, providing ceramic or thermoplastic resonator is considered as an obvious design modification since such resonator is well known in the art (see also, Scott et al. fig. 3A, resonator 201A is made of plastic material).

Regarding claims 15, 18, and 22, providing tuning screws or coupling screws at the first portion is considered as an obvious modification since such design technique is well known in the art, and also it does not alter filter characteristics.

Regarding claims 23 and 28-30, Scott et al. also show the conductive layer 201B (i.e., silver, col. 4, lines 45-55), where the resonator is located at, is more conductive than the cover 202 (i.e., aluminum, col. 6, lines 3-5). Moreover, it is inherent that the density of the dielectric material of the first portion has a lesser density (i.e., plastic material) than the metal material of the second portion (gold or copper, col. 4, lines 45-66). It would have been obvious to one of ordinary skill in the art to provide the first portion made of a dielectric material of a first density (which has a lesser density than the conductive cover 12) in the device of Kosuga et al. for low-cost and lightweight filter as taught by Scott et al. (col. 2, lines 20-33). Furthermore, it would have been obvious to one of ordinary skill in the art to provide the second portion having a high conductive layer than the first material of the first portion in the device of Kosuga et al. for a temperature stability as taught by Scott et al. (col. 4, line 67 – col. 5, line 44).

Applicant's arguments filed on 9/19/05 have been fully considered but they are not persuasive.

Applicant argues that "in order to arrive at the claimed limitation, one would have to combine the portion of Scott et al.'s dielectric housing have a the larger surface area

Art Unit: 2817

with the conductive portion of the housing of Kasuga et al. having the smaller surface area. However, Scott et al. only describes attaching resonators to the portion of its dielectric housing that has the greatest surface area. As such, one of ordinary skill in the art would not have been motivated to combine the dielectric portion of Scott et al. that has the greatest surface area with the conductive lid of Kasuga et al. that has the resonators attached thereto, since the dielectric portion of Scott et al. that has the greatest surface area already has resonators attached thereto (see REMARKS, page 15, last paragraph). The examiner respectfully disagrees.

Kasuga et al. (fig. 10) discloses resonators 21-24, 61, 62 attached to the second portion 12 made of a conductive material and having a smaller surface area than the first portion 11. Moreover, Kasuga et al. teaches that the resonators can also be attached to the first portion having a greater surface area than the second portion (see fig. 1). It should be noted that Kasuga et al. reference is used as a primary reference.

Scott et al. teaches the first portion 201 having a larger surface area made of dielectric material coated with a conductive material. Thus, it is the examiner's position that it would have been obvious to provide the first portion having a dielectric material with a conductive coating layer instead of a conductive case member 11 in the device of Kasuga et al. to provide a low cost filter as taught by Scott et al. (col. 2, lines 15-34). Applicant's argument that Scott et al. shows a resonator attached to the first portion having a greater surface area than the second portion is not persuasive since Kasuga et al. already shows the resonators attached to the second portion having a smaller surface area (fig. 10), and the examiner is using Scott et al. reference for the teaching of



Art Unit: 2817

providing the portion with the greater surface area has the dielectric material coated with a conductive layer to lower the manufacturing cost and to provide a light-weight filter.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-23 and 28-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dahl et al. and Piirainen disclose a combine filter having the housing made of a dielectric material coated with a conductive material.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


Art Unit: 2817

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Seungsook Ham  
Primary Examiner  
Art Unit 2817

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